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PHOTO 5.1—An exhilarated Billy Mills wins the 10,000 meters at the 1964 Olympic Games. The Marine Lieutenant of Native American ancestry had a vision. Considered far out of his class in this event, he upset the favorites while achieving the exact time he had foreseen and posted above his bed nearly a year before. Photo from AP/ Wide World Photos.

CHAPTER 5

THE PEAK PERIOD



Athletes will be able to compete and perform at the highest level during the peak period. Since the truly hard work is all but done, it can also be the most enjoyable time of the athletic season. If the training has been faithfully executed, athletes will gather themselves with confidence for the approaching contests. But beware: Nemesis punishes man by fulfilling his dreams, hopes, and desires too completely. Success can magnify character flaws. It can lead athletes on like an intoxicant into an abyss. Training is building. Each workout is a brick in the wall, a gathering of physical and mental powers. Racing takes away. The moment of achievement has the two faces of Janus: It places a capstone upon an edifice that has been months or years in the making, but at the same time shatters the edifice.

In the moment of victory I did not realize that the inner force, which had been driving me to my ultimate goal, died when I became the world's fastest miler.

—Derek Ibbotson

The Short Peak Period

There are essentially three types of peak periods: the short peak period, the extended peak period, and the multiple peak period. These three variations differ greatly in length and complexity. The short peak period consists of three distinct phases that differ in duration depending on the athlete's physical age, training age, sex, aerobic ability, and the nature of the preceding training program.

- **The Ascent**
- **The Plateau of Peak Performance**
- **The Descent**

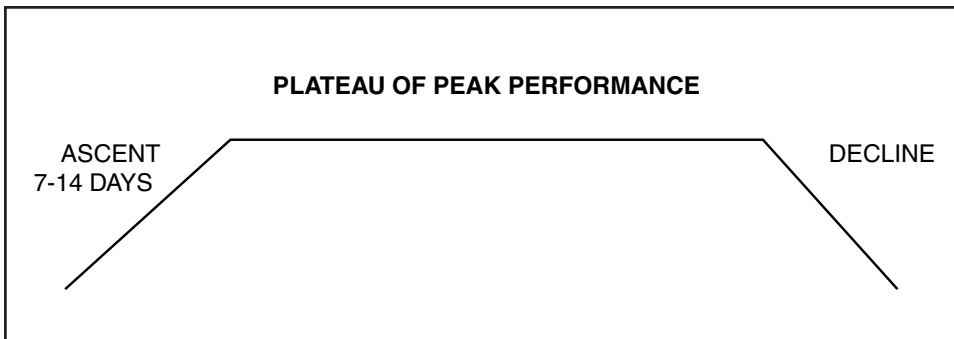


Figure 5.1

The Ascent to the Plateau of Peak Performance

The peak period begins immediately after the last 3/4-effort sharpening workout. It starts with an ascent, or so-called taper, that corresponds to a worthwhile break lasting seven to 14 days. During this time, athletes train at less than 60% of their maximal working capacity. The ascent leads to a relatively brief plateau of peak performance, and competition in the main race event for the seasonal goal performance. The duration of the ascent largely depends on the ability of the athletes to recover from the demanding sharpening work which has preceded. Normally, high school and collegiate athletes will require an ascent, or worthwhile break, lasting nine to 10 days. However, elite athletes who train upwards of 100 miles a week sometimes only require seven days, due to their superior load and recovery capabilities. Obviously, the training activity conducted during the ascent can significantly determine the quality of the performances delivered on the plateau.

Once athletes begin the ascent and enter the peak period, absolutely no exhaustive work should be done. This cannot be overemphasized. Athletes should not perform demanding interval or repetition training as during the sharpening period, or the anaerobic threshold, steady state, or hill training sessions as during the base and hill periods. Further, athletes will normally not engage in over-distance time trials at this time, unless their buildup to the peak period was, for some reason, compromised by lost training time due to illness or injury. In general, demanding efforts including substantial quantity (volume and duration), will suppress quality (performance). Such efforts could knock athletes flat and incapable of performing at a high level. In this case, some part of the nine-to-10-day ascent would have to be repeated all over again, and generally not without some loss of performance potential. In sum, by the time athletes enter the peak period, "the hay should be in the barn." If the hay is not in the barn, then nothing can be done about it. Any work attempted at this time (insofar as it is work) will only serve to suppress performance.

The Plateau of Peak Performance

The duration of the plateau depends upon a number of factors, including an athlete's physical age, training age, sex, aerobic ability, the nature and content of

the training program, and the momentum gathered during the preceding athletic season. The plateau enjoyed by female athletes is generally 20 to 30% shorter than that of males at a comparable level of development. This reflects the differences in their relative aerobic ability and strength. Mature athletes who possess a higher aerobic ability and also a more extensive training background will enjoy a longer plateau of peak performance.

The quantity, volume, or mileage undertaken in training has a direct impact on the length of the plateau. All things being equal, athletes who have introduced higher levels of quantity in training (without compromising quality) will recover faster from training and racing efforts. These athletes will be able to compete and deliver superior performances in closer proximity, and potentially enjoy a longer period of peak performance. Obviously, those athletes who need to undertake numerous preliminary trials will require superior powers of recovery, and must prepare themselves accordingly. The following provides some guidelines with respect to the duration of the peak period.

- Mature high school boys can hold the peak for a full 14 days, whereas girls must subtract three to four days (20-30%), and thus have approximately 10 days.
- Mature collegiate men and women can be considered elite national and international class athletes (See below).
- Elite men can maintain peak performance for about three weeks, whereas the duration for women is unlikely to exceed two weeks.

The duration of the short peak period consists of a seven-to-14-day ascent to a plateau of peak performance lasting approximately two to three weeks. Keep in mind that respectable performances are possible during the ascent to the plateau. However, competition during the descent associated with declining powers should be avoided. Accordingly, the total duration of the short peak period is approximately four weeks for high school athletes, and closer to six weeks for mature collegiate athletes and elite post-collegiate athletes.

The Descent from the Plateau of Peak Performance

A descent characterized by a decline in fitness follows the plateau of peak performance. The duration of the descent approximately corresponds to that of the ascent. However, much depends on the quality of decision-making with respect to maintaining equilibrium and balance during the peak period. The physical decline will be characterized by a gradual dwindling, as opposed to being a dramatic event. It results from the inevitable loss of the fitness attained through previous training, since athletes cannot maintain accumulated physical powers for an indefinite period of time. The cessation of hard work was necessary to enable optimal performance, but in time, the momentum gathered will run its course, and the fitness of the athletes will begin to decline. The risk of injury, both physical and mental, would be greatly increased by engaging in competition during the descent. If athletes have peaked properly, the decline of physical powers is never

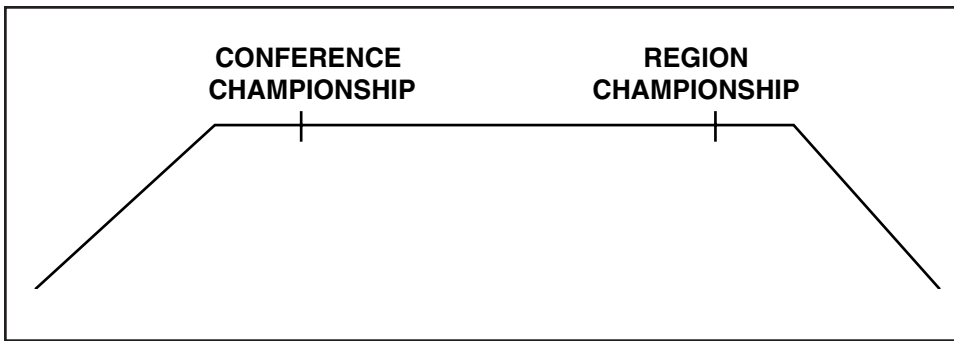


FIGURE 5.2—Plateau for young high school athletes

seen. It should not be. Rather, the athletes should fulfill their goals and expectations for the competitive season within the plateau of peak performance when it counts! This being the case, it would be physically and mentally difficult to proceed further. Frankly, it should not be attempted, lest the athletes suffer needless frustration. It is better to finish with exhilaration, and the feeling that greater things are still possible. There is a physical peak and an emotional peak, and both must happen at the right time and place. It is important to know when to persevere, but also when to quit.

Considerations For Young Versus Mature Athletes

High school athletes normally attempt a short peak period, consisting of a single ascent and plateau of peak performance, and then focus on one or two relatively closely spaced competitions. Remember, as a general rule, high school athletes can only maintain the plateau for approximately two weeks. Young athletes should normally focus on the conference championship and region championship (sometimes the latter is also called the district, or sectional championship). They should then properly position these competitions on the plateau so they can qualify for the state championship (as shown in Figure 5.2).

More mature athletes should position the region and state championships on the plateau, and then compete in the conference championships on the fifth to seventh day of the ascent—that is, when not at their full performance potential. During the conference championships in track and field, mature athletes generally should compete in either their over-distance or under-distance event, since they will face numerous contests in the main race event during the upcoming region and state championships. Figure 5.3 shows the general structure of the peak period for these athletes.

The same kind of accommodation must be made with respect to collegiate athletes. In collegiate cross-country, young athletes will focus on the conference and region championships. Because these events normally fall two weeks apart, they can bridge the gap and place both competitions on the plateau of peak performance (as shown in Figure 5.4).

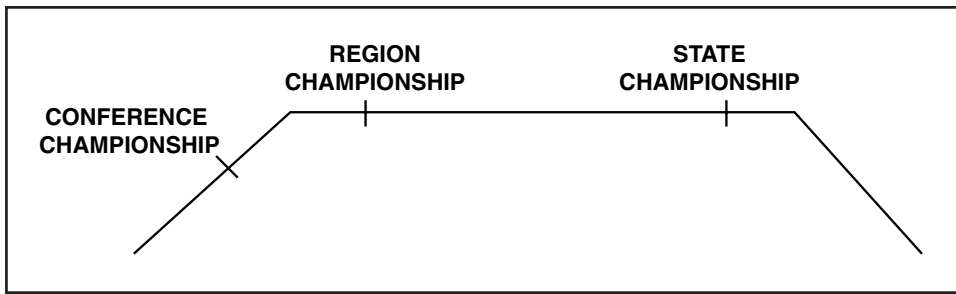


FIGURE 5.3—Plateau for mature high school athletes

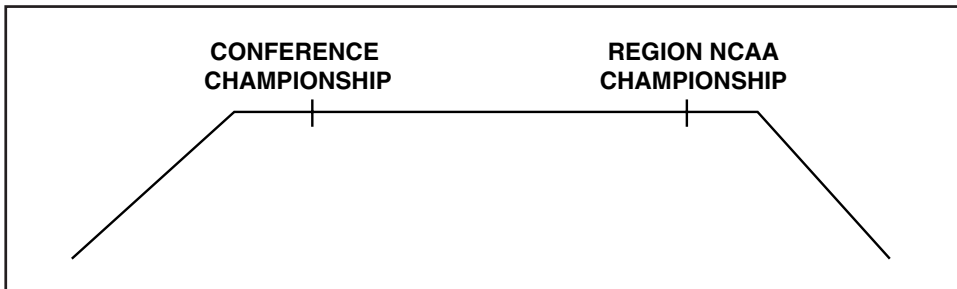


FIGURE 5.4—Collegiate Cross-Country: Young Athletes

The Extended Peak Period

High school athletes participating in cross-country or track and field sometimes use an extended peak period when they compete in conference, region, and state championships, which are separated by three or more weeks. Collegiate athletes in cross-country or track and field also use it when they must compete in relatively widely separated conference, region, or national championships. Elite athletes preparing for a national championship meet in which team selection for the World Championships or Olympic Games is on the line, also sometimes use an extended peak period. This can provide them with a preliminary indication of their fitness and enable fine-tuning before the qualifying competition.

When conducting an extended peak period, athletes normally begin with a short peak period scenario—an ascent consisting of a worthwhile break lasting seven to 14 days that includes an under-distance time trial placed three to four days prior to the first competition on the plateau. During the cross-country season, it may not be possible for athletes to vary the distance of their races. However, during the track and field season, athletes would be able to compete over-distance or under-distance relative to the main race event in this first competition on the plateau of peak performance. For example, specialists at 10,000 meters could race 3,000 or 5,000 meters, two or three weeks prior to a major 10,000 meters competition. Specialists at 5,000 meters could similarly race 1,500 or 3,000 meters, and specialists at 1,500 meters could compete at 800

meters. Thereafter, the athletes could recover four to five days, and then conduct one or more stabilizing training sessions during a seven-to-14-day micro-cycle. In any case, the last 3/4-effort training session should be performed at least seven to 10 days before the goal main race event. An under-distance time trial should then be conducted three to five days prior to the competition to set the athletes up for optimal performance.

The extended peak period conducted by collegiate cross-country athletes merits further discussion. In the United States, the various collegiate conference cross-country championships are normally held two weeks prior to the regional championships, and the national championship is normally contested nine days later. Given sound preparation, mature male collegiate athletes will not have a problem bridging this three-to-four-week gap. However, sometimes it is prudent to compete in the conference championships while still within the nine-to-10-day ascent to ensure that the athletes will be able to maintain their momentum all the way through to the national championship. If young collegiate athletes are being relied upon in order to advance a team from the regional to the national championship, then certain adjustments should be made. In this regard, young male athletes, mature male 1,500-meter sided athletes, and female competitors should be held out of either the conference or regional championships, and instead, other athletes should be rotated into the lineup. If this is not possible, they should compete in the conference championship while still within the nine-to-10-day ascent to the plateau of peak performance. Figure 5.5 shows this particular example of an extended peak period.

In collegiate track and field, only mature athletes will be capable of qualifying for the national championship on the basis of their individual performances. Young athletes should then focus exclusively on the conference championship, and can use either the short or the extended peak period models, as desired. Mature male athletes can normally hold peak fitness for three weeks. If their conference championship is scheduled less than two weeks prior to the regional qualifier, and the NCAA championships less than two weeks later, they will be able to bridge the gap, provided that they are well prepared and do not over-race. However, they are best advised to compete in the conference championship during the ascent to the plateau in order to ensure optimal performance at the NCAA championships, as shown in Figure 5.6. Mature collegiate women should adopt the model shown in Figure 5.6, or alternatively, that shown in Figure 5.7.

The Multiple Peak Period

The necessity of achieving optimal results during several widely separated peak periods within a single athletic season poses a difficult challenge. In the United States, high school athletes face this situation when, after their state cross-country championships, they attempt to qualify for the national championship in San Diego, California. This could require athletes to maintain peak fitness over a span of nearly two months. A multiple peak period is also required by elite athletes who qualify in mid-June or July at their national track and field championship for competition in the World Championships or Olympic Games in August or September.

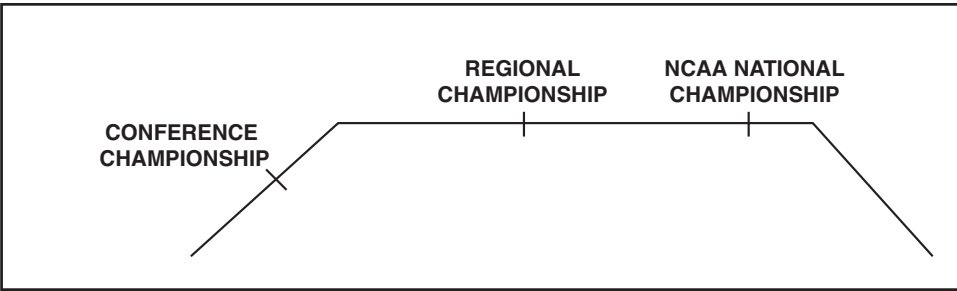


FIGURE 5.5—Collegiate cross-country

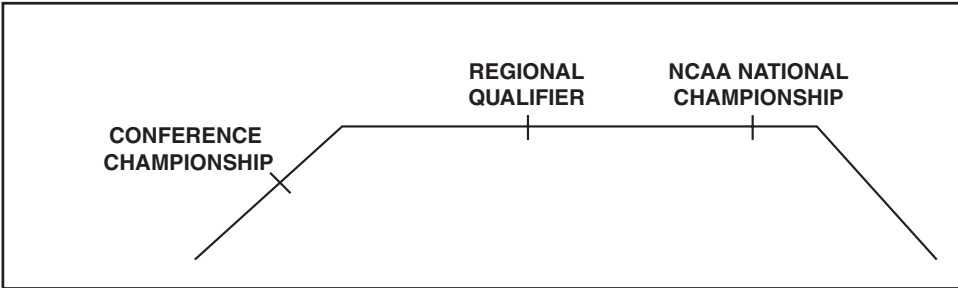


FIGURE 5.6—Collegiate track and field: mature male athletes

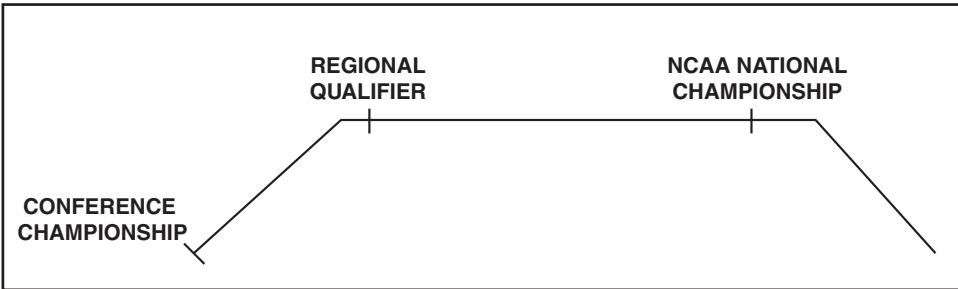


FIGURE 5.7—Collegiate track and field: mature female athletes

The multiple peak period is an infrequent case, but certainly the most complex. When conducting a simple peak period, the athletes ascend to the plateau of peak performance and race off of the momentum gathered during the preceding athletic season. During this time, they enjoy a respite from acquisitive work. But when trying to bridge a wide gap between major competitions, athletes will need to withdraw from the plateau in order to recharge and prepare themselves for further competition.

The multiple peak period begins with a short peak period, or alternatively, an extended peak period, as described above. However, the athletes must withdraw from the first plateau of peak performance, and then engage in acquisitive, regenerative, or stabilizing work. It is relatively uncommon to conduct acquisitive work in the midst of a multiple peak period, since truly hard work tends to suppress performance. Acquisitive work should only be done if the two succeeding peak periods are widely separated, or if an athlete suffers inadequate preparation and fitness due to a preceding illness or injury. Normally, athletes undertake one or more meso-cycles of regenerative work. The aim of a regenerative meso-cycle is to rebuild and restore certain aspects of fitness. Accordingly, the training loads undertaken during a regenerative meso-cycle do not attempt to break any new ground. Within a multiple peak period, the training conducted in the course of one or more regenerative meso-cycles will often briefly recapitulate the work performed during the base, hill, and sharpening periods, and in like sequence. The multiple peak period therefore resembles a miniature athletic season. For example, during a regenerative meso-cycle following the first plateau, several weeks of base and hill work could be performed. The athletes could then sharpen over the next seven to 14 days, and then assume a seven-to-10-day worthwhile break and thereby ascend to the second plateau of peak performance. This second plateau could comprise another short or extended peak period. Obviously, the longer athletes try to extend themselves, the higher the risk of injury and loss of peak fitness.

Young high school competitors trying to bridge the gap between their state meet and the national championship in cross-country should conduct regenerative and stabilizing work. Figure 5.8 shows a multiple peak period model for high school athletes who need to maintain a high fitness level for their state, regional, and national cross-country championships.

In a regenerative meso-cycle, athletes could repeat select training sessions previously conducted during the buildup to the first plateau of peak performance. In fact, when performing regenerative or stabilizing work, it is generally best to reduce the effort of the workouts relative to the original acquisitive training sessions. The emphasis is on maintaining and refining previously acquired powers. Repeating previous workouts that are slightly reduced in both quantity and quality will be less stressful, both physically and mentally, than the original acquisitive effort. This training practice can cause stagnation of athletic performance, but that is entirely consistent with the goal of maintaining peak fitness.

The challenge faced by elite athletes who need to qualify at their national track and field championships for an international competition such as the World Championships or Olympic Games will now be addressed. For example, at least six weeks generally separate the USATF National Track and Field Championship from the World Championships or Olympic Games. Six weeks is too long for athletes to maintain their peak fitness by merely continuing to race and recover. If they continue to race in the weeks following their national championship (and perhaps travel extensively in order to do so), they could lose their peak form and be heading downhill before the World Championships or Olympic Games.

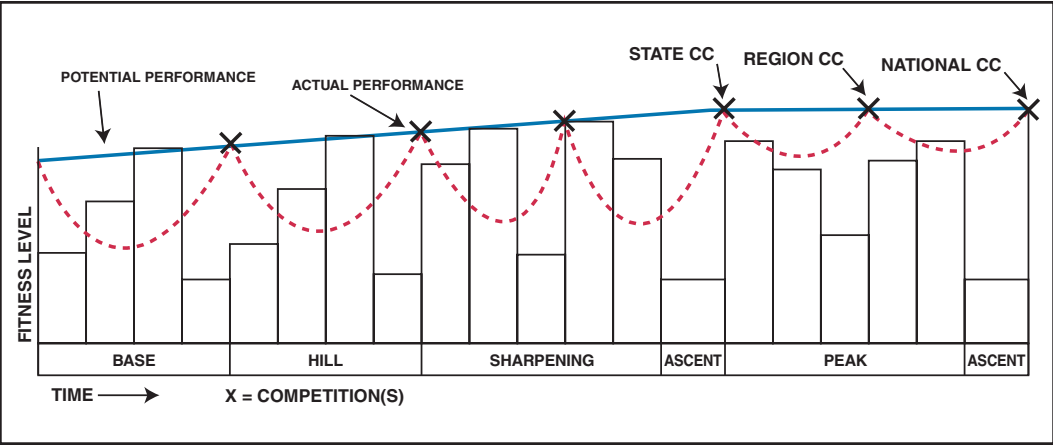


FIGURE 5.8—Multiple peak period for cross-country

It would better for athletes to conduct at least two weeks of base and strength work after their national track and field championships. Thereafter, they would need at least two or three sharpening workouts to regain peak fitness. However, the training sessions should then constitute regenerative or stabilizing efforts. Specifically, the training sessions would essentially repeat select workouts conducted previously, but with some reduction in effort. Again, athletes should not attempt dramatic acquisitive efforts at this time. For example, athletes should not attempt to attain a new and improved working capacity by any of the following: increase their weekly mileage; extend the distance of their long run; conduct a particular workout at a faster pace; or undertake a new type or style of workout, possibly including more reps or shorter recovery periods. All of these variables are commonly used to raise an athlete's working capacity and performance potential. Acquisitive training efforts often have the short-term effect of suppressing athletic performance, and this would be clearly undesirable heading into the World Championships or Olympic Games.

After conducting one or more regenerative meso-cycles, a seven-to-10-day ascent would be undertaken prior to the second plateau of peak performance for the World Championships or Olympic Games. Table 5.2 provides examples of training schedules for possible use between the respective dates of the USATF Championships and the World Championships. Obviously, these schedules are only meant to illustrate key training principles, since the particular information in a given model year is unique. A number of assumptions have been made in drafting these particular schedules. The model year 1995 was used to derive the actual date of the events, and the men's track and field competition schedules were used. The schedules also assume that elite athletes would compete at the Bislett Games in Oslo, Norway, which fell approximately three weeks prior to the 1995 World Championships in Gothenburg, Sweden. In order to achieve optimal results, some athletes should avoid competition in such high level events prior to a World Championships or Olympic Games. Nevertheless, the schedules were

written to accommodate both the Bislett Games and the World Championships. This introduces greater complexity and risk, but may serve to impart a better understanding of certain training principles.

The multiple peak period scenario is not easy to accomplish without making a fundamental mistake. Obviously, many other solutions are possible, but for every viable solution, there are a dozen alternatives that simply do not add up. When drafting a multiple peak period schedule, coaches and athletes should carefully count backwards and forwards from each date of competition, and study every interrelationship.

The Control and Refinement of Peak Fitness

The specific conditioning required to bring an athlete to a high level of fitness for competition in the main race event is largely conducted during the sharpening period. At that time, decisions concerning the quantity and quality of the work aim at maintaining equilibrium and balance relative to the desired goal performance in the main race event. Again, once within the peak period, no exhaustive training sessions of any kind should be undertaken. During the peak period, athletes essentially compete on the momentum created during the course of the athletic season. But that momentum can either be preserved or dissipated by the quality of decisions made regarding the composition of the training and racing program during the peak period. The fitness level of the athletes can be greatly influenced by both the selection of the time trials and races, and also the manner in which they are conducted. In this regard, the time trials and competitions should be carefully composed and placed so as to enable athletes to always be on the crest of the supercompensation from the preceding effort when the next is being assumed. To do this, the load and recovery capacity of each individual athlete needs to be appreciated, and then a series of training or racing efforts must be conducted in a way to permit the supercompensation effects to build upon one another without a miss. This can be accomplished by prudently modulating quantity (volume, duration) and quality (frequency, density, and intensity). Moreover, a series of succeeding time trials and competitions should be conducted that will best serve to maintain optimal balance with respect to the main race event. At this time, the competitions and time trials are almost the only high quality efforts that can induce significant changes in the fitness of the athletes. Essentially, they will be racing and recovering during the peak period. However, the length of the peak period can be extended by regenerative or stabilizing work aimed at maintaining endurance, strength, and speed.

The coach and individual athlete should develop a select training schedule for the peak period that can be used and refined over succeeding seasons. This provides a basis for comparison, analysis and interpretation that would otherwise not be possible. In this case, the coach and athlete not only have a way of knowing the athlete's response at any given time, but of viewing present circumstances in light of experience. They will then be able to read the athlete's status at any point in time with greater clarity, and thus better address outstanding

needs and requirements. This will enhance their ability to control the acquisition of peak fitness, and permit greater fine-tuning of performance. Athletes have a tremendous edge when they approach the starting line with the confidence of knowing that they are ready to deliver their best personal performance at that time and place.

The practical effects of various time trials and races depend upon their quantity (volume, duration) and quality (frequency, density and intensity). Peak fitness can be more rapidly attained and ultimately exhausted by increasing the quality of the training sessions, time trials, and races. In the course of a given athletic season, the fastest way to sharpen is to frequently engage in competition. However, the inherent physical and mental liabilities associated with this practice normally induce a peak relatively early in the athletic season, and at less than optimal performance levels. Likewise, the fastest way to consume and exhaust fitness during the peak period is to engage in frequent competition. Quantity tends to suppress quality, and vice-versa. The lesser the quantity and higher the quality, the greater the sharpening and peak accelerating effect. Conversely, the greater the quantity and lesser the quality, the lesser the sharpening and peak accelerating effect. For example, a long easy run can boost the length of the peak period, whereas a day off can freshen up an athlete and permit the benefits of preceding quality efforts to arrive. Running 3,000 meters at 3/4-effort does not sharpen or peak an athlete as rapidly as performing 2 x 1,500 meters at the same effort. Running 1,500 meters at 3/4-effort does not sharpen an athlete as quickly as 2 x 800 meters at the same effort. Clearly, various combinations of quantity and quality can be used to induce similar sharpening effects.

Within the peak period, there is less disparity in training between athletes of various levels than at any other time in the season. For this reason, the most productive way to address questions concerning athletic development and the means of controlling the peaking process is to discuss the individual training sessions during the peak period.

The "Day Off" is a form of passive recovery, and serves to slow the rate at which athletes reach peak form. A day off allows the preceding quality work to take effect and the athletes to freshen up. For this reason, many misinterpret the practical effect of a day off as accelerating the rate of reaching peak fitness. A day off is most appropriate in the days following an intense competition that may have resulted in a severe depletion, such as after competition in 5,000 or 10,000 meters; numerous prelims in middle distance events; and, always after contests held in conditions of extreme temperature and humidity. A day off also permits the restoration of energy stores, and can serve as the stitch in time that saves athletes from a dangerous level of residual fatigue.

During the peak period, young athletes would do well to take a day off occasionally. They enjoy a shorter plateau of peak performance, and a day off helps to extend their range, thus preventing a decline as the championship meet approaches. Psychologically, the same holds true, because physical and mental states are interdependent. Mature athletes, as a result of superior physical and

mental conditioning, tend to better weather the stress associated with championship competitions. Nevertheless, a day off between succeeding championship competitions would be highly desirable even for mature athletes. Despite their feelings of elation following a successful outcome, they have faced a long and hard season. This drains them emotionally. Athletes should beware if they often find themselves thinking: "I'll be glad when it is over." A day off can go far to restore the athletes' perspective—and potential for optimal performances. They will then clearly see how much they desire to excel in the coming contest.

The "Passive Recovery" options in the training schedules can be taken as a complete day off from all athletic activity. However, when athletes can benefit from speeding up their metabolism and recovery rate, a morning run or swim can be conducted. Running or swimming at this time should always be at an easy effort and limited to 10 to 25 minutes. If athletes need a mental break from training, the passive recovery day can provide an opportunity for a non-exhaustive form of recreation.

The "Easy Recovery" option includes 20 to 40 minutes of easy running during a single training session. Since an easy recovery day will often fall two days prior to a time trial or competition, athletes should then stretch thoroughly, because extensive stretching should not be done the day before a major competition. If a morning running session has been the habit, it would be dropped on this day.

The "Active Recovery" session normally follows a demanding training or racing effort. When the athletes' level of development permits, that is, by the time they qualify as mature high school athletes, an easy morning run should be added on days of active recovery. During the morning run, the athletes only need to elevate their metabolism by conducting an easy 10-to-25-minute warm-up. By speeding up their metabolisms in the morning, the athletes will accelerate their rate of recovery, and the practical effect will be as if they had an additional half-day of recovery. Morning runs are also the most constructive and painless way to control any undesired weight gain, since the metabolism will be increased by 10 to 15%, and more calories will be burned in the course of a day. As an alternative, an easy swim can sometimes be more beneficial than a morning run. The afternoon training session on days of active recovery could last from 20 to 70 minutes, depending on the athletes' level of development. During the peak period, this session should not generally exceed 40 to 50 minutes, because energy stores could otherwise become too depleted. Athletes should conduct a pre warm-up, light stretching and flexibility work, then a full warm-up and a running session over gentle rolling terrain. In the course of the run, athletes should perform about a dozen 50-to-100-meter accelerations at speeds approaching that of the training effort conducted on the preceding day. Otherwise, their recovery rate will be slowed due to the lack of specific use of affected muscle groups, and their metabolism will remain relatively dormant. Sometimes it helps to run the accelerations up and down a gentle incline, since this tends to ensure successful completion of the task. The active recovery session concludes with light stretching and flexibility work, and whenever possible, some easy barefoot jogging on grass.

The “Long Easy Run” is done to maintain equilibrium and balance with respect to the endurance required for the main race event. For this reason, it is good to maintain an aerobic session once a week throughout the peak period. Depending on the ability of the athletes and their particular main race event, the long easy run will normally last 30 to 90 minutes during the ascent to the plateau of peak performance. Nevertheless, once upon the plateau, even mature specialists at 10,000 meters should reduce the long run to 80 minutes maximum. Otherwise, their energy reserves can become too depleted. However, a longer run can sometimes be performed during a regenerative or stabilizing meso-cycle within an extended or multiple peak period. Provided the athletes are not hung over from a demanding race or suffering extremely low energy reserves, a long easy run can allow athletes to recharge and refit themselves for competition—but only if it is not *too* long, and is actually easy. In many instances, a long easy run can better recharge athletes than taking a day off, but sometimes they need to get away from training altogether. In any case, a restorative environment is extremely important at this time. If possible, go to a natural environment alone or with select company.

The “Finishing Speed” sessions put the final edge on the capability of the athletes to perform their finishing kick. At this time, the aim is purely to enhance their speed and efficiency. In no way should the athletes become fatigued by doing hard work. The finishing speed sessions normally include relatively few repetitions between 50 and 300 meters in distance, and should be conducted at $3/4$ to $7/8$ ths of an individual athlete’s maximum speed, but without any indication of pressing. The athlete’s speed should flow and be controlled, as opposed to being forced. Given the speeds assumed, athletes would not do well to extend the distance beyond 300 meters, since they would then move away from primary use of the ATP-PC energy system, and instead tap into the ATP-Lactic Acid system, which could introduce residual fatigue. The recovery periods provided within the session must also be complete. The athletes can take walking recoveries as long as they do not lose sufficient warm-up, thus perhaps begin to cool off and tighten-up. It is unwise to place a finishing speed workout less than three days prior to a competition, because any possible stiffness and soreness would be most apparent on the second day following the session (Liquori with Parker, 1980).

The “Time Trials” are normally conducted three to five days before a major competition, and permit athletes to arrive on the day of the contest while on the resulting crest of supercompensation. If athletes do not undertake such an effort after enjoying a relatively long recovery from a preceding competition, then they will become flat and lose peak fitness. The placement of the time trial depends largely on the individual’s athletic level, and any special needs that arise in the light of circumstances. Trade-offs are then made between the quantity and quality most suitable for a given athlete and competitive event.

Mature athletes normally require a time trial at $3/4$ -effort approximately three to four days prior to a major competition. Alternately, they can sometimes time trial or race approximately $1/3$ rd the distance of the main race event at full effort four to five days prior to competition.

- Mature athletes normally require a volume of 2,000-3,000 meters at 3/4-effort 3-4 days prior to a 10,000 meters competition, but could run a 3,000-meter race approximately 4-5 days prior to the competition to achieve the same result.
- Mature athletes normally require a volume of 1,000-2,000 meters at 3/4-effort 3-4 days prior to a 5,000-meter competition, but could run a 1,500-meter race approximately 4-5 days prior to the competition to achieve the same result.
- Mature athletes normally require a volume of 600-1,000 meters at 3/4 to full-effort 3-4 days prior to a 1,500-meter competition, but could run a 1,000-to-2,000-meter race 4-5 days prior to the competition to achieve the same result.
- Mature athletes normally require a volume of 300-500m 3 days prior to an 800 meters competition, but could run a 400m race to achieve the same result.

The time trials can be used to maintain equilibrium and optimal balance. For example, if a specialist at 1,500 meters is weaker on the over-distance side, a 2,000-meter race could be run four to five days prior to the competition to better balance the athlete. Alternately, if a specialist at 1,500 meters athlete was weaker on the under-distance side, then something between 600 to 1,000 meters could be run three to five days prior to the competition. Given like circumstances, the same principle would apply to athletes competing in other events. An athlete's schedule can then be planned in advance to coordinate a string of competitive opportunities to be used for the purposes just described.

If desired, the time trials can alternately take the form of the 50-60 drill or 30-40 drill to accelerate the athletes' rate of peaking. In particular, middle distance athletes can use the 50-60 drill (alternating 50 meters sprint with 60 meters float, for two to three laps), and long distance athletes can use the 30-40 drill (alternating 200 meters in 30 seconds with 200 meters in 40 seconds in a continuous manner for less than 3,200 meters).

Young athletes must err on the side of leniency regarding the quantity, quality and proximity of the time trials so they can deliver superior performances in the main race event. To permit an adequate recovery and rebound of performance, these athletes can move the time trial back a day relative to mature athletes, and also conduct an easier time trial. Most importantly, young athletes should guard against racing in practice when running the time trials. It is fine for athletes to run a personal best in a time trial, so long as it is incidental. Athletes should not emotionally spend themselves by getting "psyched" for training sessions and then deliver their best performance in practice. It is best for athletes to save themselves and build up internal pressure of a constructive kind that will enable them to prove all things at the right time and place.

I think there's a great temptation for an athlete to test himself. It's a weakness in every one of us. We like to know if everyday we're improving. That's part of human nature. If a guy decides to go on a crash diet, he doesn't want to see that scale a couple pounds lighter in three week's time. He's got to be bloody lighter by tomorrow or to hell with it.

The athlete has the same sort of tendency when he's training. There is a terrific temptation to test yourself and to measure your improvement and I believe that's a weakness. I think that you have to resist that temptation and have confidence in yourself and the toughness of your training and know within yourself that is going to produce results...

This is why Lasse Viren seems to save himself up for a specific event... When he actually gets into the event that he's saved himself for, maybe for three years, there's a tremendous internal pressure. He hasn't proved himself to himself or the world by continually doing fast times. . .the pressure that has built up inside him is enormous. If he has the ability to transfer that pressure into performance, then he's going to have a great performance...

So I'm a great believer in resisting the temptation to keep proving yourself to yourself.

—Herb Elliott

The “Day Before Race” (DBR) training session is required when no preliminary rounds are run prior to a final. Without undertaking a stimulating cardiovascular activity within 48 hours of a major competition, optimal performance will not be possible. Something must then be done to elevate the readiness of cardiovascular system. Obviously, the day before a major competition it is desirable to jolt the cardiovascular system into a high state of readiness with the least expenditure of energy, and also while incurring the least possible fatigue. An advisable method would be to conduct the following session:

- A full warm-up followed by light stretching
- 4-6 x 100 meters stride-outs
- A hollow 400 meters with the first 100 meters consisting of a gradual acceleration to 75% of full speed for 400 meters, then float 200 meters, and finish the last 100 meters at 75% of full speed, but without any evidence of pressing or engaging the kick reserved for competition

When dealing with relatively young and fit athletes, within 10 seconds, their 10-second pulse reading after completing the hollow 400 meters should be at least 160+ bpm, thus indicating that their pulse was actually near 180 bpm during the exercise, as desired. If not, after a full recovery, 300 meters should then be run in the same manner. Mature high school boys will normally run the hollow 400 meters at least in the low 60's, and girls in the high 60's to low 70's, depending on

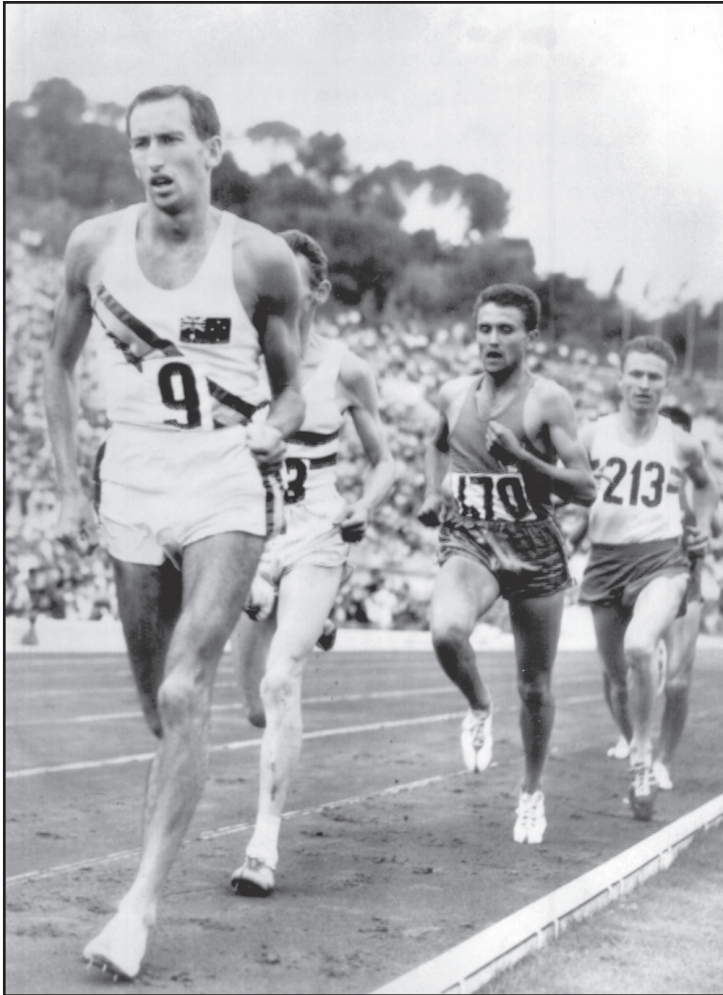


PHOTO 5.2—Herb Elliott breaks away from the field en route to a World Record in the 1,500 meters at the Olympic Games, 1960. Photo from Keystone Germany.

their level of ability. Again, four to six gradual 100 meters stride-out, some light stretching and flexibility work, and a good warm-down conclude the DBR session. Elite athletes who have recently traveled might wish to run a few reps at goal pace between 100 to 400 meters in distance (depending on their competitive event), but with full recovery periods.

The “Race Day” routine should be planned far in advance of a major competition. In order to be prepared for optimal performance, athletes should awaken at least four hours prior to a morning competition. Further, athletes should awaken at that time at least one day before the race, and train at the appointed hour of the race to set their circadian rhythm. However, if significant travel across time zones will take place, then at least seven to 10 days are required for adaptation.

When a preliminary round is conducted prior to a final, it is extremely important that athletes assume easy training sessions twice a day to speed recovery. The most desirable activity for the evening or morning after a preliminary round is 20 to 30 minutes of easy swimming. Packing the athletes' quads, hamstrings, and calves with ice for 20 minutes in the evening following a preliminary round will also facilitate recovery. Ingesting at least a liter of fluid such as a citrus juice (which serves as natural buffer), or a commercially available electrolyte replacement drink, will also enhance recovery. Fluid replacements should be ingested within 20 minutes of the exhausting effort, thus before the body registers the full extent of the athletes' fatigue, and possible symptoms of shock appear. To enhance recovery, athletes should consume a simple form of sugar, but also some protein shortly after a preliminary round.

Whenever possible, athletes should run for 10 to 20 minutes in solitude the morning before a major race. During the easy morning run the athletes should center themselves, and visualize the coming day of competition. Afterwards, a light meal should be taken, and the remainder of the day spent in a positive environment. Some athletes need to be around the hype attending competitions to reach an optimal performance state, but most need to be kept away from it. Recognize the particular needs of individual athletes so that they will be able to compete to the best of their ability.

Athletes must prepare for weather conditions. For example, they should:

- In hot weather—take a cool shower, have ice water with them at all times, and stay out of the sun and heat
- In frigid weather—dress appropriately prior to competition, allow for a preliminary warm-up indoors, then a longer warm-up outdoors

Expect the unexpected in the way of mix-ups. Do not become frazzled by the difficulties that always attend major competitions. Be polite with officials, but otherwise give nothing away. Athletes should keep to themselves and not permit coaches, athletes, or members of the media to distract them by making conversation, or any form of physical contact. Athletes are best advised to avoid these situations whenever possible. Otherwise, their physical and mental powers could be greatly compromised.

Peak Period Training Schedules

Training schedules for various events during the peak period are provided below for young and mature high school, collegiate, and elite distance runners, in events from 400 to 10,000 meters.

High School Track and Field / Cross-Country

The first Thursday in the provided schedules indicates the last 3/4-effort sharpening workout and the end of the sharpening period. Using this day as a starting point (or day zero), and then counting forwards, athletes will assume a worthwhile break and normally complete their ascent to the plateau of peak

performance by the ninth to 10th day. The finals in the state meet can also serve as an origin (day zero), when counting backwards. These two counting methods can produce an overlap, as shown in the schedule. Whether planning the training schedule forwards or backwards, everything must add up and make sense in both directions. This method encourages coaches and athletes to think critically about the workouts, the number and distance of the races, and the impact that all of these will have on the primary competition and ultimate outcome of the athletic season.

Clearly, high school athletes should not race the same main race event over three succeeding weeks in the conference, regional and state championships during the track and field season. For optimal performance in the state championships, moderation must be exercised regarding the number of events contested during the earlier conference and region championships. Some high school coaches might be tempted to “sacrifice,” or overuse a talented athlete to elevate the team point total in the conference championship. They might imagine that the individual will still be able to shine in the regional and state championships. This is a big mistake. *When coaches find themselves asking whether or not to risk overextending an athlete, whether in training or competition: the mere posing of the question provides the answer. And the answer is no, do not do it.*

The awful truth in distance running is—greed is not good. A decision to overextend an athlete for a team point total is fundamentally different from a decision based upon prudence, such as, recognizing that an athlete is only capable advancing to the conference meet, and then training the athlete to peak at that time. It is not possible to compromise without losing something—the athlete’s development, and possibly the outcome of an athletic season or career.

With many of these issues, the real question is virtue. The primary purpose of participation in athletics is the cultivation of character, rather than points on a scoreboard. Stay the course. The outcome is incidental to excellence. If you take the attitude to do the right thing, simply because it is right, often the desired outcome will be there waiting for you as well.

HIGH SCHOOL 400 METERS

0	Thursday	3/4-Effort, 2 x 600m at 800m Goal Pace
1	Friday	Active Recovery
2	Saturday	Time Trial, 3 x 150m with Accelerations
3	Sunday	Easy Effort, Long Run, 30-40 minutes
4	Monday	Day Before Race Routine
5	Tuesday	CONFERENCE PRELIM, Race 100m and 200m
6	Wednesday	Active Recovery
7	Thursday	CONFERENCE FINAL, Race 100m and 200m
8	Friday	Active Recovery
14/9	Saturday	Passive Recovery
13/10	Sunday	Easy Effort, Long Run, 30-40 minutes
12/11	Monday	Time Trial, 2 x 150m with Accelerations
11/12	Tuesday	3 x Starts and Handoffs
10	Wednesday	Day Before Race Routine
9	Thursday	REGION PRELIM, Race 400m
8	Friday	Active Recovery
7	Saturday	REGION FINAL, Race 400m
6	Sunday	Active Recovery
5	Monday	Passive Recovery
4	Tuesday	Time Trial, 2 x 150m with Accelerations
3	Wednesday	3 x Starts and Handoffs
2	Thursday	Day Before Race Routine
1	Friday	STATE PRELIM, Race 400m
0	Saturday	STATE FINAL, Race 400m

Regarding the high school 400 meters schedule, during the conference championship, specialists at 400 meters are well advised not to compete in the main race event. Since the athletes face two succeeding weeks of competition in the main race event and relays, it would be best to race under-distance or over-distance during the conference championship.

HIGH SCHOOL 800 METERS

0	Thursday	Time Trial(s) 600m, full recovery, then 300m
1	Friday	Active Recovery
2	Saturday	1/2 Effort, Fartlek + 3 x 60m Starts
3	Sunday	Easy Recovery
4	Monday	Day Before Race Routine
5	Tuesday	CONFERENCE PRELIM, Race 400m
6	Wednesday	Active Recovery
7	Thursday	CONFERENCE FINAL, Race 2 x 400m
8	Friday	Active Recovery
14/9	Saturday	Easy Effort, Long Run, 40-60 minutes
13/10	Sunday	Passive Recovery
12/11	Monday	Time Trial 300m slow-fast, full recovery, then 3 x 150m with Accelerations, walk recovery
11/12	Tuesday	Active Recovery
10	Wednesday	Day Before Race Routine
9	Thursday	REGION PRELIM, Race 800m
8	Friday	Active Recovery
7	Saturday	REGION FINAL, Race 800m
6	Sunday	Easy Effort, Long Run, 40-60 minutes
5	Monday	Passive Recovery
4	Tuesday	Time Trial 300m slow-fast, full recovery, then 3 x 150m with Accelerations, walk recovery
3	Wednesday	Active Recovery
2	Thursday	Day Before Race Routine
1	Friday	STATE PRELIM, Race 800m
0	Saturday	STATE FINAL, Race 800m

Regarding the high school 800 meters schedule, during the conference championship, specialists at 800 meters are well advised to race under-distance, since they will run four competitions in the main event over the following two weeks.

HIGH SCHOOL 1,500 METERS

0	Thursday	3/4-Effort, 4 x 1,000m at 3,000m Goal Pace
1	Friday	Active Recovery
2	Saturday	1/2-Effort Fartlek + 3 x 100m at Finishing Speed
3	Sunday	Easy Effort, Long Run, 40-60 minutes
4	Monday	Day Before Race Routine
5	Tuesday	CONFERENCE PRELIM, Race 800m
6	Wednesday	Active Recovery
7	Thursday	CONFERENCE FINAL, Race 800m and 400m
8	Friday	Active Recovery
14/9	Saturday	Easy Effort, Long Run, 60-80 minutes
13/10	Sunday	Passive Recovery
12/11	Monday	3/4-Effort, Time Trial 1,200m, then 300m slow-fast
11/12	Tuesday	Active Recovery
10	Wednesday	1/2-Effort, Fartlek + 3 x 100m at Finishing Speed
9	Thursday	Easy Recovery
8	Friday	Day Before Race Routine
7	Saturday	REGION FINAL, Race 1,500m
6	Sunday	Easy Effort, Long Run, 60-80 minutes
5	Monday	Passive Recovery
4	Tuesday	3/4-Effort, Time Trial 1,000m, then 300m slow-fast
3	Wednesday	Active Recovery + 3 x 100m at Finishing Speed
2	Thursday	Easy Recovery
1	Friday	Day Before Race Routine
0	Saturday	STATE FINAL, Race 1,500m

This 1,500-meter schedule is for an 800-meter sided specialist at 1,500 meters who would race 800 meters in the conference championship and 1,500 meters in the state championship. The time trials at 1,000 and 1,200 meters would normally be conducted at goal pace for 1,500 meters. After a full recovery, the slow-fast 300 meters would normally be run at 41-43 seconds (boys), and 48-51 seconds (girls). See Appendix I for alternate 1,500 and 3,000-meter schedules for an athlete who would compete in both events in the state championship.

HIGH SCHOOL 3,000 METERS

0	Thursday	3/4-Effort, 4 x 1,000m at 3,000m Goal Pace
1	Friday	Easy Effort, Long Run, 60-80 minutes
2	Saturday	Easy Recovery
3	Sunday	Time Trial 1,200m, then 300m
4	Monday	Active Recovery + 3 x 150m at Finishing Speed
5	Tuesday	Easy Recovery
6	Wednesday	Day Before Race Routine
7	Thursday	CONFERENCE FINAL, Race 1,500m
8	Friday	Easy Effort, Long Run, 60-80 minutes
14/9	Saturday	Passive Recovery
13/10	Sunday	Time Trial 1,000m, then 300m
12/11	Monday	Active Recovery + 3 x 150m at Finishing Speed
11/12	Tuesday	Easy Recovery
10	Wednesday	Day Before Race Workout
9	Thursday	REGION FINAL, Race 3,000m
8	Friday	Active Recovery
7	Saturday	REGION FINAL, Race 1,500m
6	Sunday	Easy Effort, Long Run, 60-80 minutes
5	Monday	Passive Recovery
4	Tuesday	Time Trial 800m of 50-60 drill, then 300m
3	Wednesday	Active Recovery + 3 x 150m with Accelerations
2	Thursday	Day Before Race Routine
1	Friday	STATE FINAL, Race 3,000m
0	Saturday	STATE FINAL, Race 1,500m

This 3,000 meters schedule is for an athlete competing in the 1,500 meters during the conference championship, and both the 3,000 meters and 1,500 meters in the state championship. It is suited for more mature athletes who would advance and attempt to place in the top six in the state championship. The 3/4-effort time trials at 1,000 and 1,200 meters should be run at 1,500 meters goal pace. After a full recovery, the slow-fast 300 meters would normally be run at 41-43 seconds (boys), and 48-51 seconds (girls).

HIGH SCHOOL BOYS AND GIRLS CROSS-COUNTRY 5,000 METERS

0	Tuesday	3/4 Effort, 4 x 1,200m at 5,000m Goal Pace
1	Wednesday	Active Recovery
2	Thursday	1/2-Effort, Fartlek + 3 x 200m at Finishing Speed
3	Friday	Active Recovery
4	Saturday	Time Trial, 1,600m
5	Sunday	Active Recovery + 4 x 150m with Accelerations
6	Monday	Easy Recovery
7	Tuesday	Day Before Race Routine
8	Wednesday	CONFERENCE FINAL, Race 5,000m
9	Thursday	Easy Effort, Long Run, 60-80 minutes
10	Friday	Passive Recovery
14/11	Saturday	Day Before Race Routine
13/12	Sunday	Time Trial 1,200m, then 300m
12/13	Monday	Active Recovery + 3 x 150m at Finishing Speed
11/14	Tuesday	Easy Recovery
10	Wednesday	Day Before Race Routine
9	Thursday	REGION FINAL, Race 5,000m
8	Friday	Easy Effort, Long Run, 60-80 minutes
7	Saturday	Passive Recovery
6	Sunday	Active Recovery + 6 x 200m at 1,500m Goal Pace
5	Monday	Day Before Race Routine
4	Tuesday	Time Trial 1,000m, then 300m
3	Wednesday	Active Recovery + 3 x 150m with Accelerations
2	Thursday	Easy Recovery
1	Friday	Day Before Race Routine
0	Saturday	STATE FINAL, Race 5,000m

This schedule for boys and girls cross-country is suited for mature high school athletes who would advance to the state championship.

Collegiate Track and Field / Cross-Country

The collegiate cross-country schedule is suited for athletes who must focus on peaking for the conference championship, and qualifying for the NCAA Regional Cross-Country Championships. The workout 8 days prior to the Regional Championships is therefore a stabilizing training effort. Mature athletes will be able to follow this schedule and successfully compete one week later in the National Championship. However, developing and 1,500-meter athletes should compete in their conference championships 5-7 days after the last sharpening workout, thus during the ascent or taper, and be held out of at least one of the two earlier contests.

**COLLEGIATE CROSS-COUNTRY
WOMEN'S 5,000 METERS AND MEN'S 10,000 METERS**

0	Thursday	3/4 Effort, 4-5 x 1,000m at 5,000m Goal Pace
1	Friday	Active Recovery
2	Saturday	1/2 Effort Fartlek + 3 x 200m at Finishing Speed
3	Sunday	Easy Effort, Long Run, 60-80 minutes
4	Monday	Passive Recovery
5	Tuesday	Time Trial, Men: 2,000m 30-40 drill Women: 1,200m 50-60 drill
6	Wednesday	Active Recovery + 3 x 150m at Finishing Speed
7	Thursday	Easy Recovery
8	Friday	Day Before Race Routine
14/9	Saturday	CONFERENCE FINALS
13/10	Sunday	Active Recovery
12/11	Monday	Passive Recovery
11/12	Tuesday	Easy Effort, Long Run, 70-90 minutes
10/13	Wednesday	1/2 Effort, 3(4 x 200m) at 1,500m Goal Pace
9	Thursday	Active Recovery
8	Friday	2/3 Effort, 4 x 1,000m at 10,000m Goal Pace
7	Saturday	Easy Effort, Long Run, 60-80 minutes
6	Sunday	Active Recovery + 3 x 150m at Finishing Speed
5	Monday	Passive Recovery
4	Tuesday	Time Trial, Men: 2,000m 30-40 drill, Women: 1,200m 50-60 drill
3	Wednesday	Active Recovery + 4 x 150m with Accelerations
2	Thursday	Easy Recovery
1	Friday	Day Before Race Routine
0	Saturday	NCAA REGIONAL FINALS

The reader should now be familiar enough with the vocabulary and notation in the training schedules to permit a comparative presentation with respect to the preparation of collegiate athletes in events ranging from 800-10,000 meters, prior to a conference championship. The schedule for a 10,000-meter specialist could be essentially the same as that for 5,000 meters. However, the time trial prior to the conference championship would then have to be moved back a day, as the 10,000 meters is normally contested the day before the 5,000 meters final.

Table 5.1 comprises an extended peak period that would allow an attempt at a personal best performance 10 days into the peak period, and thus maximize competitive productivity during the limited 14-to-21-day plateau of peak performance. An attempt at a personal best should normally be directed to an under-distance or over-distance performance, but could in some circumstances be directed towards the main race event in order to attain or improve a qualifying mark.

A brief discussion should help to clarify any ambiguities in the provided schedules. The last 3/4-effort sharpening workout falls approximately nine to 10 days prior to the first competition on the plateau of peak performance. After this last sharpening workout, the following training sessions can be conducted: a day of active recovery, a day of finishing speed work, an easy effort, a long run, and a day of passive recovery. This brings us to the time trial conducted four to five days before the first competition on the plateau. World-class athletes can sometimes conduct the time trial as close as three days before a major competition, whereas collegiate athletes normally catch the resulting wave of supercompensation by performing a time trial four days previous. However, when athletes are on the ascent, or have residual fatigue from sharpening efforts, they will sometimes need an additional day of recovery from the time trial. In this case, it can be advantageous to conduct a finishing speed session three days prior—in conjunction with a time trial performed five days before the competition, as shown in Table 5.1.

After the first competition, athletes will require four to five days to recover before assuming another demanding effort. The following training sessions could then be undertaken: a day of active recovery, an easy effort, a long run, and a day of passive recovery. Then, no closer than nine days prior to the conference championships, athletes should conduct a 2/3rds to 3/4-effort training session to stabilize their performance potential. An earlier acquisitive training session can then be repeated, but with suitable reduction in effort as to permit any resulting fatigue to be dissipated by the time of the conference championship.

Accordingly, between the first competition on the plateau and the conference championship, athletes ride the supercompensation waves generated by the demanding efforts that are all spaced four or five days apart:

- From the last sharpening workout to the first time trial
- From the first time trial to the first competition
- From the first competition to the stabilizing high quality training session
- From the stabilizing high quality training session to the second time trial
- From the second time trial to the conference championship prelim or final

Table 5.1 shows comparative schedules for collegiate track and field athletes for the 800–10,000-meter events.

Extended Peak Period for Collegiate Track And Field: 800-10,000 Meters				
KEY TO ABBREVIATIONS				
AR	Active Recovery	MRE	Main Race Event	
FS	Finishing Speed	DBR	Day Before Race Session	
ER	Easy Recovery	ODE	Over-Distance Event	
PR	Passive Recovery	UDE	Under-Distance Event	
LR	Long Run	XUDE	X Under-Distance Event	
TT	Time Trial	@ 1/4	1/4 Effort	
F	Fartlek	@ 1/2	1/2 Effort	
FS	Finishing Speed	@ 3/4	3/4 Effort	
800m	1,500m	3,000m	5,000/10,000m	
0 MRE 2 x 600m	ODE 5 x 1,000m	MRE 5 x 1,000m	AR	
1 AR	AR	AR	MRE 4 x 1,600m	
2 F+FS 4 x 100m	F+FS 4 x 150m	F+FS 3 x 200m	AR	
3 LR	LR	LR	F+FS 4 x 200m	
4 PR	PR	PR	LR	
5 TT 1,200m, 300m	TT 400m, 400m	TT 800m, 400m	TT 1,000m, 300m	
6 AR	AR	AR	AR	
7 F+FS 3 x 100m	F+FS 3 x 150m	F+FS 3 x 200m	F+FS 4 x 200m	
8 AR	AR	AR	ER	
9 DBR	DBR	DBR	DBR	
10 Race 1,500m	Race 800m, 400m	Race 1,500m	Race 3,000m	
11 AR+FS 3 x 100m	AR+FS 3 x 150m	AR	AR	
12 LR	LR	F+FS 4 x 150m	F+FS 4 x 150m	
11 PR	PR	LR	LR	
10 MRE 2 x 500m	ODE 4 x 1,000m	PR	PR	
9 AR	AR	ODE 4 x 1,000m	ODE 5 x 1,000m	
8 F+FS 3 x 60m Starts	F+FS 3 x 100m	AR	AR	
7 AR	AR	F+FS 3 x 150m	F+FS 3 x 150m	
6 LR	LR	LR	LR	
5 TT 400m, 200m	TT 1,000m, 300m	PR	PR	
4 AR 3 x 60m Starts	AR+FS 3 x 100m	TT 1,200m, 300m	TT 1,600m, 300m	
3 ER	ER	AR+FS 3 x 150m	AR+FS 3 x 150m	
2 DBR	DBR	ER	ER	
1 800m Prelims	1,500m Prelims	DBR	DBR	
0 800m Final	1,500m Final	3,000m Final	5,000m Final	

TABLE 5.1

Elite Athletes: Track and Field

Table 5.2 provides illustrative schedules for elite athletes competing in the 800–10,000-meter events between the USATF National Championship and the World Championships.

Multiple Peak Period USATF National Championships to the World Championships			
KEY TO ABBREVIATIONS			
AR	Active Recovery	MRE	Main Race Event
FS	Finishing Speed	DBR	Day Before Race Session
ER	Easy Recovery	ODE	Over-Distance Event
PR	Passive Recovery	UDE	Under-Distance Event
LR	Long Run	XUDE	X Under-Distance Event
TT	Time Trial	@ 1/4	1/4 Effort
F	Fartlek	@ 1/2	1/2 Effort
SS	Steady State	@ 3/4	3/4 Effort
ATSS	AT Steady State		
800m	1,500m	5,000m	10,000m
14 ER	ER	5,000m Semis	DBR
15 DBR	DBR	AR	10,000m Final
16 800m Prelims	1,500m Prelims	5,000m Final	AR
17 800m Semis	AR	AR	PR
18 800m Final	1,500m Final	PR	PR
19 AR	AR	LR	LR
20 PR	PR	UDE 3(4 x 200m)	UDE 4(4 x 200m)
21 LR	LR	AR	AR
22 ODE 3(4 x 200m)	ODE 3(4 x 200m)	F @ 1/2	F @ 1/2
23 AR	AR	LR	LR
24 F @ 1/2	F @ 1/2	PR	PR
25 AR	AR	ATSS @ 3/4	ATSS @ 3/4
26 LR	LR	AR	AR
27 PR	PR	F @ 1/2	F @ 1/2
28 ATSS @ 3/4	ATSS @ 3/4	AR	AR
29 AR	AR	SS@ 3/4	SS @ 3/4
30 F @ 1/2	F @ 1/2	LR	LR
1 AR	AR	PR	PR
2 SS @ 3/4	SS @ 3/4	UDE 2(5 x 400m)	MRE 4 x 1,600m
3 LR	LR	AR	AR
4 PR	PR	F @ 1/4	F @ 1/4

TABLE 5.2

	800m	1,500m	5,000m	10,000m
5	MRE 3(3 x 300m)	MRE 2(4 x 400m)	AR	AR
6	AR	AR	MRE 5 x 1,000m	UDE 5 x 1,000m
7	F @ 1/4	F @ 1/4	AR	AR
8	AR	AR	PR TRAVEL	PR TRAVEL
9	MRE 3 x 500m	MRE 2 x 800m	F @ 1/4	F @ 1/4
10	LR	LR	ER	ER
11	PR TRAVEL	PR TRAVEL	DBR	DBR
12	F @ 1/4	F @ 1/4	TT 1,000m, 300m	TT 1,200m, 300m
13	AR + FS 4 x 150m	AR + FS 4 x 150m	AR + FS 4 x 200m	AR FS 4 x 200m
14	ER	ER	ER	ER
15	DBR	DBR	DBR	DBR
16	Race 400m	Race 800m	Race 1,500m	Race 3,000m
17	AR	AR	AR	AR
18	FS 3 x 100m	F+FS 3 x 150m	F+FS 3 x 200m	F+FS 3 x 200m
19	ER	ER	ER	ER
20	DBR	DBR	DBR	DBR
21	Race 800m	Race 1,500m	Race 3,000m	Race 5,000m
22	AR	AR	AR	AR
23	LR	LR	LR	LR
24	FS 3 x 100m	FS 3 x 150m	FS 3 x 200m	2UDE 12 x 200m
25	AR	AR	AR	AR
26	DBR	DBR	DBR	UDE 5 x 1,000m
27	Race 1,500m	Race 800m	Race 1,500m	LR
28	AR	AR	AR	PR
29	F+FS 3 x 60m	F+FS 3 x 150m	F+FS 3 x 150m	F+FS 3 x 150m
30	LR	LR	LR	ER
31	PR	PR	PR	DBR
1	TT 300m	ODE 4 x 1,000m	ODE 5 x 1,000m	TT 1,500m
2	AR Starts	LR	LR	AR+FS 3 x 150m
3	ER	AR+FS 4 x 150m	AR+FS 4 x 150m	ER
4	DBR	ER	ER	DBR
5	800m Prelims	DBR	DBR	10,000m Prelims
6	800m Semis	TT 600m, 300m	TT 1,000m, 300m	AR
7	AR	AR+FS 3 x 100m	AR+FS 3 x 150m	AR
8	800m Final	ER	ER	10,000m Final
9		DBR	DBR	
10		1,500m Prelims	5,000m Prelims	
11		1,500m Semis	5,000m Semis	
12		AR	AR	
13		1,500m Final	5,000m Final	

TABLE 5.2, continued

Mental Habits and Optimal Performance

There is a limit to how many outstanding performances athletes can deliver during an athletic season. Some individuals are incapable of getting it all from themselves in a supreme effort, while others seem to be able to do the impossible. Generally, when athletes receive gratification through training or any other avenue that leads to a state of satisfaction, they would dissipate an equal amount of mental energy, and sacrificed the gumption required for superior performance. To inwardly have a degree of contempt for flattery may be heterodox, but it is sound advice. That is one of the reasons why mature coaches and athletes are loath to make predictions, and as a rule, avoid pre-event interaction with the media: "It ain't over till it's over."

A host of physical and mental problems can arise from competing too frequently. Nothing exhausts peak condition faster than too frequently racing the main event. Moreover, the damage done to the competitive psyche of athletes could be permanent. For this reason, athletes should run the main race event infrequently, and only when physically and mentally prepared to deliver a supreme effort. When they do race the main event in a finals heat, it must be absolutely full out. To develop the conscious or unconscious habit of holding back in the main race event is self-defeating. This will happen if athletes are frequently being doubled, or running the main race event on a weekly basis. When an individual is not prepared to race as if it were a matter of life and death, then he or she can be beaten by someone who is.

It is important to protect those rare athletes who can give their all to the contest, from acquiring bad habits out of the need for self-preservation. Some big-meet personalities are born, and others self-made. Unfortunately, many are destroyed in their youth by the unenlightened expectations and demands of those on whom they depend for guidance. To compete well is an act. Habits are acquired by repeated acts. Right habits are virtues. This is the theory of disposition taught by Aristotle, Augustine, and Thomas Aquinas (Aristotle, in Thompson, 1946, Aquinas, in Pegis, 1948, Deane, 1963, and Lyden, 1986).

I believe that in any race you let a guy beat you—and you do let him beat you if you are not absolutely psychologically tuned up to winning at all costs—that creates a precedent that allows you to get beat in the race you care about... that was the sort of attitude that I had... But I had a dual goal in my running, that was to win and to achieve excellence, so I was never happy with a slow, tactical time.

—Herb Elliott

Fear of Failure

Fear of failure is commonly recognized and well understood. It often becomes most visible and acute during the peak period. Many athletes afflicted with a fear of failure actually suffer from a form of post-traumatic stress disorder. They often have prior learning experiences from a psychologically hostile environment in which failure at a task brought physical or psychological pain. These individuals are the walking wounded, and more vulnerable due to their psychological scar tissue. They might have dysfunctional or various levels of “dysfunctionally functional” emotional and behavior patterns. The forms of active aggression which they may have experienced as a child could have included physical abuse, confinement, hardships, or denial of privileges.

This can be a difficult and gray area for parent and coach alike. After all, a child disturbing others with a tantrum may require a time out. A child who takes the car without permission and hits a fire hydrant should perhaps be grounded. An athlete who breaks team rules could be benched. However, what perhaps matters most in matters of discipline are the actual and perceived intentions of the participants. Discipline with the emotional attachment of hate and rejection is destructive, but reasonable and appropriate discipline with a sense of fairness, and the emotional attachment of love is constructive. Parents, young children, even animals can discern one emotion from the other, and know whether or not they are loved.

Undoubtedly, with regard to fear of failure in sport, the most serious form of injury comes through the association of conditional love—with outcomes. Losing a game is no longer a matter of losing at play, but rather losing the love of one’s parents, peers and the “tribe.” Losing at play then means rejection and emotional death. Often associated with rejection are verbal attacks on the athlete’s self-worth, such as, “you are no good—worthless,” and so on. These forms of verbal abuse constitute active aggression. Passive aggression also qualifies as a form of abuse. It essentially communicates the same message of rejection and conditional love, but by acts of omission. When internalized, this negative self-image can be toxic and self-defeating, because the individual succumbs to believing what he or she hears. As a result, goal setting may not occur, or the goal may be set low. This negative self-fulfilling prophesy could also result in low levels of energy being directed toward a goal.

However, the more damaging aspect of internalization comes not only when individuals begin to believe the negative things they hear, but when, as a result of rejection and a loss of love, they blame themselves for it, and perhaps come to not love themselves. Thoughts such as, “damn, I missed the shot...” associated with self-disgust, are a symptom of this disease. The conditional attachment of love and self-worth to performing a successful outcome has then become internalized, and it is now the individual athlete who administers the abuse.

Coincidentally, this attachment constitutes a form of outcome orientation. Play and enjoyment are sacrificed for the desired end, or so-called success. Such attachment invariably results in numerous breaks in concentration. It diminishes the ability to focus on the task at hand, since attention is fixed on imagining a

hypothetical outcome. In general, outcome orientation is also associated with an undue attachment to time, either the past or the future. Instead of focusing on the present, an individual may unduly cling to a positive or negative outcome that has just transpired. Similarly, an athlete might imagine a positive or negative future outcome. Wants, needs, and a variety of desires associated with the ego, can result in attachment to thoughts that do not relate to the here and now—the moment. These invariably result in numerous breaks in concentration and non-optimal levels of athletic performance. This phenomenon was well known to the Zen Masters (Suzuki, 1959, and Takuan Sōhō, in Wilson, 1987).

Fear of Success

Athletes who suffer a fear of success are less often recognized and understood. Those uninitiated to sport may find it surprising that athletes sometimes suffer an aversion to success. However, on any given day, the number of athletes suffering a fear of success generally equals the number suffering a fear of failure. The most common cure for both extremes is for athletes to transcend outcome orientation. This is simple to say, but can be difficult to accomplish. Years of errant thinking can result in deeply instilled beliefs and self-perceptions. For example, if a hundred negative thoughts have been registered, then it will generally take a hundred positive thoughts in order to have a 50/50 chance of breaking even. Further, when athletes face physical or mental stress, their old mental habits tend to dominate. Athletes afflicted with a fear of success generally have one of two basic problems:

- They are not prepared for the responsibilities, further demands or consequences associated with success.
- They suffer from a negative self-image, a lack of confidence, and feel unworthy or guilty about achieving success.

There can be many reasons why athletes might have an aversion to the responsibilities, further demands, or consequences associated with success. Sometimes, athletes face the pressure of little league parents, coaches, or their peers. In truth, pressure is something individuals put on themselves. Nevertheless, some athletes come to believe that failure provides the only avenue of escape. The “success monster” is never satisfied and only wants more. Sometimes the only way to escape from being consumed is to fail—and to do so in grand fashion in order to be left in peace.

Alternatively, it could be that athletes do not enjoy the activity for its own sake, but rather participate in athletics as a ticket to get something else. When they attain that something else, and extremely common and easy way to drop athletics is to fail. Sometimes athletes anticipate that they will face even greater responsibilities and demands if they attain a higher level of success. Consciously or not, they might judge the next level to be beyond their comfort zone. Failure can then provide an escape from the test. It can be easier to say, “I did not have the talent,” than to admit, “I did not want to do it,” (which may well be justified) or, “I did not have the guts to do it.”



PHOTO 5.3—Zen Master Takuan. Plate 35, from Suzuki, Daisetz: *Zen and Japanese Culture*. Copyright © 1959, Princeton University Press. Reprinted by permission of Princeton University Press.

Those individual who suffer guilt over success are often the victims of abuse, and deserving of compassion. Something like the following can be said in such cases: It may be true that when an athlete competes to the best of his or her ability that some of the competitors will become psyched out. Consciously or not, these competitors might concede future contests and permit the athlete to dominate races from the start. While an individual can foreknow the probable effects of his or her superiority on the competition, this does not entail preordination. After all, the competitors can choose either to be intimidated or inspired.

A great performance, and the mark it establishes, contributes to excellence. The competitors, and those who come after, will be that much better for what an athlete achieves by honorable means—provided they have the strength of character to find that something extra within themselves and rise to the challenge. This is one of the reasons why the world loves a performer, whether in sport, or in any other realm.

Athletes who are afflicted with a fear of success due to a negative self-perception can sometimes be identified by their inability to verbalize in a strong voice, “I deserve to (whatever the goal happens to be),” in the presence of their coach and peers. Many find themselves completely tongue-tied or only capable of weak utterances. The Zen masters believed in the mutual interdependence and potency of thought, word and deed. If necessary, hold a private team meeting, and with the playful support of their teammates do not let any individual leave unless he or she can shout out, “the team deserves to...” but also, “I deserve to...” and most likely, the desired outcome will be achieved.

Whether the fear be of failure or success, athletes can become susceptible to illness or injury due to stress imposed by their mental state. One evening of anxiety can undo months of training. The adrenaline needed for the next day’s competition can then go down the drain. Accordingly, the fittest athlete in the world will not be able to prove it unless he or she has trained for mental as well as physical fitness.

There’s probably going to be a quantum leap forward when we understand our minds better. I believe that we just barely understand our physical capabilities at this stage of the game. There will come a time when knowledge of ourselves will enable us to tap that physical resource. At that time, we’ll see a quantum leap in all sports.

—Herb Elliott

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PHOTO 6.1—Exhausted... and leaning towards post-season recovery.
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CHAPTER 6

POST-SEASON RECOVERY



The normal cycle of human existence over the millennia has included a period of diminished activity resembling a period of hibernation. In truth, the veneer of modern civilization has not gone far to supplant the handiwork of the ages. We need our vacations to get away from it all. Sometimes we need to do nothing. Doing nothing is sometimes doing something important. Sport is a highly compressed and intense form of life. Accordingly, athletes have great need for a period of post-season recovery following a competitive season.

Physical Aspects

Athletic development is characterized by three stages:

- Acquisition—hard training
- Consolidation—competition and performance
- Decline—post-season recovery

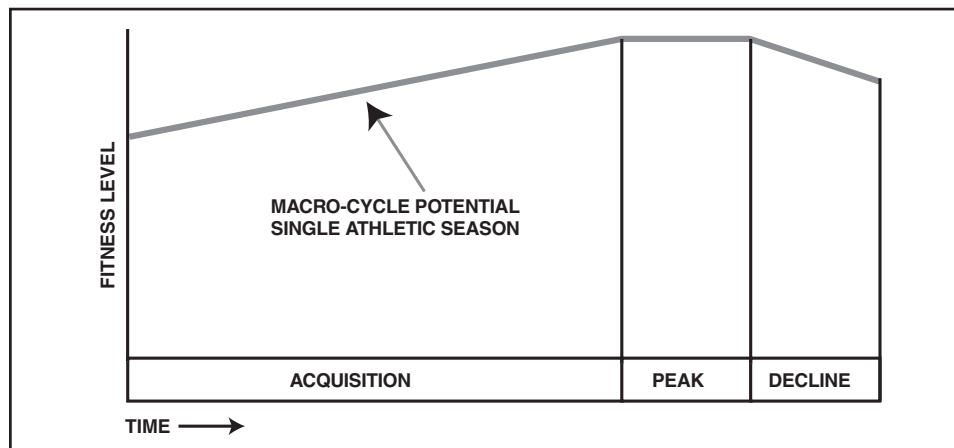


FIGURE 6.1

As discussed in Chapter 1, the effort of the training sessions vary within the weekly micro-cycle to permit adequate recovery from acute fatigue, and thereby facilitate super-compensation. However, after a more extended period of demanding work, an athlete needs a regenerative worthwhile break to consolidate the potential created by previous training efforts, and avoid the onset of residual or chronic fatigue. In brief, the more demanding the training, the greater the need

for load-leaping and taking periodic worthwhile breaks. Accordingly, the training meso-cycles will be shorter and more frequent.

Nevertheless, even with the conduct of load-leaping and meso-cycles including worthwhile breaks, it is not possible to train and race indefinitely. Ten to fourteen weeks appears to be the limit of highly stressful work that distance runners can absorb before habituation or exhaustion sets in, and they cease to make substantial gains. In fact, athletes can become physically and mentally stale, and actually suffer a regression.

Aerobic work conducted well below the anaerobic threshold during the base and hill periods will not normally cause this regression. However, high quality aerobic work such as anaerobic threshold and steady state training, and also the anaerobic work performed during the sharpening period will do so. Symptoms of chronic fatigue and overstress commonly involve the disturbance of hormone and enzyme functions, and can include:

- Loss of appetite
- Insomnia
- Mental staleness
- Higher morning resting pulse rate
- Lower resistance to illness and injury

All demanding training approaches the threshold of imposing a chronic overload. The potential onset of debilitating fatigue and decline of an individual's athletic level makes it necessary to assume a period of post-season recovery. In the model shown in Figure 6.1, this corresponds to the period of decline, and serves as the prelude to the next athletic season.

Runner's High and Post-Race Recovery

The need for post-season recovery can be better understood by examining the various physical reactions that follow an athletic performance. A mental high that disguises the actual state of fatigue always follows in the wake of a full effort in athletic competition. The biochemical origin of this phenomenon is largely found in the central nervous system, and in particular, the midbrain, which triggers the release powerful natural drugs, such as cortisol, adrenaline and endorphins. If you know you have performed at full effort, then know you are tired and conduct yourself accordingly. You'll be glad that you did! For after the high comes the low, or crash, and the less you conserve of yourself, the more pronounced and prolonged the crash will be.

While still on their runner's high, athletes often become distracted and socialize immediately after a competition. But within an hour, the natural high will wear off, and their actual level of fatigue can hit them severely. Athletes can then go into mild shock, and become unable to ingest food for several hours. This mistake is fatal to a favorable result when preliminary heats of competition take place over several days. Instead, athletes should warm-down and immediately drink ample quantities of water after a performance. Additional electrolyte replacement drinks are also acceptable. When significant dehydration has occurred, and

electrolyte replacement drinks are unavailable, sometimes a half-teaspoon of salt and/or baking soda (sodium bicarbonate) added to a quart of water can help. If possible, consume a natural pH buffer including a simple sugar—a citrus juice such as pineapple-grapefruit. Hard work tends to lower the blood pH, thus rendering it more acidic. The faster you can neutralize that acidity, the sooner and better you will recover. Why drink citrus juices containing citric acid? The simple answer is that within your body, citric acid acts as a natural buffer or base, thus neutralizing acidity. Generally, athletes can better ingest a blended citrus juice than straight orange or grapefruit juice. In addition, foods having a high glycemic index can facilitate recovery, and these include simple sugars such as glucose, fructose, sucrose, honey, and molasses—also present in various fruits and breads. However, athletes should follow up with foods having a moderate glycemic index such as corn, baked beans, grapes, oatmeal, oranges, rice, spaghetti, and yams (See Coyle, 1993, 1995, Podell and Proctor, 1993, and Brand-Miller, et al., 1999). What about the usual dorm food—greasy pizza and beer after the meet? The coach and athletes should stop and think about these.

Following the conduct of a 3/4-effort training session or a race, it is best to observe the above guidelines within 30 minutes—before the natural drugs wear off and the athletes begin to crash. Generally runners should not sunbathe, sightsee, or sit in hot tubs immediately before or after a competition, since these activities can drain them and retard recovery. And as much as they might want to celebrate a good performance with a party, what they really need to do is get some sleep. This description of proper conduct after a single race effort can be applied to all hard training efforts throughout the athletic season. It can also enhance our understanding concerning the need for post-season recovery. *The capacity to perform work ultimately depends on the ability to recover from it.*

Runner's High, and Post-Season Recovery

When early man had an unexpected encounter with a bear and had to fight or take flight, his central nervous system triggered the release of large doses of powerful natural drugs (including adrenaline, cortisol and endorphins). Think of these substances as roughly corresponding to the pharmaceutical drugs known as uppers, cortical steroids, and painkillers, but endorphins are many times more powerful than morphine. This alarm reaction made possible early man's survival. However, an alarm reaction of this magnitude was not part of his daily routine. Early man did not go out and wrestle with a bear every day, or even once a week.

Hence the problem, because modern training man commonly wants to wrestle a bear in the form of a training session that will provoke a substantial alarm reaction—several times a week. The central nervous system is not designed to sustain this constant high level of demand. The body's arsenal of natural drugs cannot respond indefinitely to alarm reactions of such great magnitude and frequency. Eventually, if training man persists, he will one day face the bear, and when the alarm reaction goes off, the body's pharmacy of natural drugs will be empty. As a result, the athlete's fitness will decline and possibly regress dramatically. This can happen through simple ignorance or technical error, such as believing that more training is always the answer.

Arousal Addiction

When athletes clearly know better, but cannot bring themselves to reduce their training, then they threaten to become arousal addicts. Arousal addicts need their daily runner's high or fix to feel good about themselves, which actually is the physical and mental state of not feeling bad due to the biochemistry of arousal. They are no longer in pursuit of excellence, but rather in need of counseling and professional help. The coach might hear rationalizations from an athlete such as: "Coach, I need to train harder to improve... I don't need or want to take that time off." However, the grim reality may be that the coach is listening to a running junkie pleading for his or her next fix.

In extreme cases, the functions of the central nervous system can collapse to such a degree as to result in death. What happens when you have not eaten for a while and you become hungry? At first you feel hungry and you want something to eat. Then after a while, if you still have not eaten, the feeling of hunger leaves you. In part, what happened is that your hunger induced an alarm reaction, which provided a fix of endorphins that dulled the pain associated with hunger. Excessive behavior associated with any of the following could indicate the presence of an arousal addiction:

fasting	alcohol	over-training
bingeing	sleep deprivation	pain
spicy food	sexual adventurism	tanning
chocolate	risk taking	danger
caffeine	attention seeking	gambling

Eating Disorders and Arousal Addiction

The preceding discussion concerning hunger illustrates what individuals with eating disorders are doing to themselves all the time. They are giving their central nervous system a punch to obtain a fix of natural drugs and escape or deny their personal suffering. Recognize that common sources of stress can include the individual's family, peers, coach, significant other(s), studies, and economic or environmental conditions. Further, these stressors can exert either a positive influence on the athlete (eustress) or a negative influence (distress). Now, take an individual with an eating disorder (punch one), and add the stress of training for distance running (punch two), a routine of coffee in the morning (stimulant, punch three), bits of sugar or pop during the day (a sugar high, punch four), social excitement and beer at night (stimulant and depressant, punch five), and you face an individual who has a good chance within two years of knocking out the life support function of their central nervous system. More likely, the athlete's running career will first come to an unfortunate end. Afterwards, the individual may continue to subsist as an arousal addict for decades at a subclinical level.

If this description fits the behavior of an athlete for whom you are responsible, seek out qualified professional help. Even a reasonably knowledgeable coach would be ill advised to take on the role of a clinical psychologist. Sports psychology is something well within the domain of the coach's responsibility and

experience. However, the diagnosis, therapy and treatment of addictive disorders is out of bounds. For information on arousal addiction or eating disorders the reader may wish to contact clinical psychologist Scott Pengelly, Ph.D., who has the experience of working with many elite athletes: 1374 Willamette, Suite 6, Eugene, Oregon, 97401-4075.

Eating disorders are generally found in women, but this is just one of a number of methods of provoking an alarm reaction from the central nervous system. Young men who stay out late (punch one), play video games with fantasy aggression or watch violent sports (punch two), have drinking binges (punch three), eat junk food loaded with excitotoxins such as MSG (punch four), pursue sexual adventures (punch five), and attempt competitive distance running (punch six) operate at nearly the same level. But not much is said about this dysfunctional male behavior, perhaps due to a cultural blind spot. This behavior may not seem all that abnormal to many people. Such is the way of the world, but not the way of athletics.

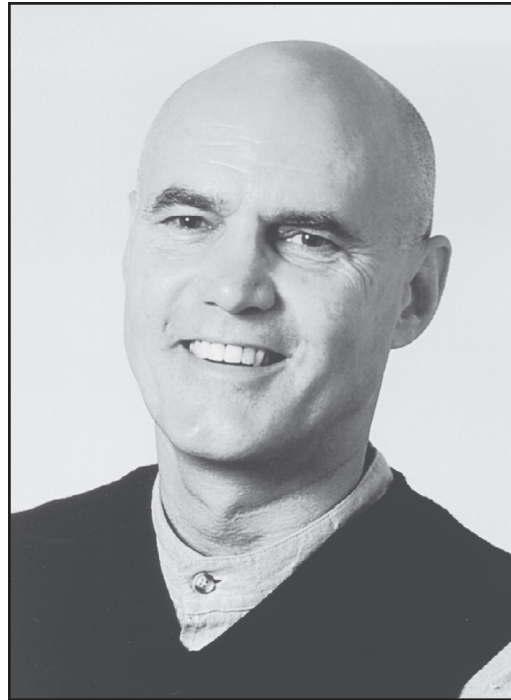


PHOTO 6.2 Scott Pengelly, Ph.D., 1999.
(Photo courtesy of Scott Pengelly)

Can an individual become a great athlete living this kind of life? Given enough talent, the answer is yes—but generally for less than two years. Alternatively, that individual might have an inconsistent career—with a good athletic season followed by several bad ones. Most natural substance abuse happens at a low enough level not to be life threatening, but it can impair an individual's quality of life. Obviously, an athlete's development can be severely affected, and there are periodic deaths that remind us of what can ultimately happen.

Properly conducted, athletic training comprises a delicate and prudent manipulation of an athlete's central nervous system, biochemistry, and in particular, a number of powerful natural drugs. If all the various stressors are handled just right, then an athlete will have the opportunity to peak at the right time and place. If not, any number of things can happen. The biggest potential stressor of all is the athlete's mind. One evening of toxic thinking can empty the natural drug pharmacy and wipe out a season of preparation as a match burning tinder.

Habituation and Stagnation

There is a limit to how much hard work the human body can tolerate, but also to what it can translate into positive adaptation and improvement. The need for

variation cannot be overstressed, given its role in preventing habituation to the training, and resulting physical stagnation. Habituation is but another important reason for taking a period of post-season recovery. As the body becomes overly accustomed to training, less athletic development takes place. What the body once felt as a stressful training load will eventually come to resemble simple equilibrium. In some sense, the body numbs to the stimulus of the training program. Coincidentally, this condition is evidenced by mental staleness and boredom. An athlete needs to take time off to get a bit out of shape and off the natural drugs, so that when the training begins again, it will hurt! The body and mind then react with positive adaptations otherwise known as athletic development.

Unfortunately, many athletes attempt to train and race without a plan or a controlled respite. They end up training more and more to obtain less and less, and by pushing indefinitely, they eventually exceed the limit of their capacities and come down with a crash—the kind of crash an athletic career does not survive.

Resolution of Injuries

In the course of a given athletic season, most serious athletes come close to an injury that would prevent them from being in the best competitive shape of their lives. The best remedy for this is an ounce of prevention. Nevertheless, one day it can be one thing, and the next day another. To some degree we work around injuries during the competitive season, and in our own way, we then choose to ignore the message nature has been giving us. The problem is that in long ignoring nature, she begins to ignore herself. After a time, the body can become accustomed to the injury, and its healing powers begin to less actively focus on the injury in question. Imbalances and weaknesses can develop that could prove debilitating and become permanent. Quality performance in distance running is concerned with long-term processes and outcomes. So take care to remedy injuries during this time of rest and recuperation.

Momentum and Delayed Acquisitions

There is always a degree to which the hard training efforts devoted to acquiring a new athletic level actually suppress performance. Accordingly, athletes do not see all the improvement actually made during an athletic season. The momentum gathered might not become apparent until after the athletes have taken a period of post-season recovery and are well into the next training build-up. At that time, their enhanced athletic ability comes as something of a pleasant surprise. For this reason, the focus should be on quality and the refinement of athletic performance, rather than dramatic acquisitive efforts, during the desired peak athletic season in a multi-year developmental cycle.

De-Training

We are creatures of rhythms, cycles, and habits, and would do violence to nature by treating ourselves abruptly. An athlete's body becomes so accustomed to work that by the end of a season it can interpret the complete cessation of training as traumatic. Unless there is a pressing physical or psychological need, train down over a week's time to a period of post-season recovery.

How Much Time Off?

The phenomenon of delayed transformation also relates to the physical growth and development of young athletes. A growth spurt will suppress athletic development—thus performance—and vice-versa. Demanding training can suppress normal maturation. It is then extremely important to keep in mind the physical age of each athlete—the younger the athlete, the longer the post-season recovery. In the United States, the average high school freshman and sophomore participating in cross-country and track would do best to take off both the entire summer vacation and the winter sport season to obtain adequate post-season recovery. Juniors and seniors should take at least one full month off, and start around the first of July with easy base work to prepare for cross-country, and in late January or early February to prepare for the track season. Collegiate and national class athletes should take a minimum of two weeks of post-season recovery after the completion of an athletic season. More down time may be necessary depending on what physical injuries need to be resolved. And more may be desired, given the individual athlete's mental disposition. In the absence of a physical problem, the latter is the determining factor.

Post-season recovery should not include taxing physical or mental activities. Any recreational activities during this period should not exceed 1/2-effort. The danger here is that athletes flirting with an arousal addiction will simply substitute another activity for running to trigger the alarm reaction and obtain their fix, thereby defeating the entire purpose.

How Much Weight Gain?

Of course, metabolism will slow with diminished activity, especially if multiple training sessions have been the habit. The most noticeable result is a tendency to gain body weight, and sometimes nearly five pounds in two weeks for a 165-pound athlete. This is desirable and should not be discouraged. It is part of the body's way of recharging itself and restoring reserves. This is particularly important for female athletes given the degree to which their metabolism can be disturbed by athletic training. A failure to gain weight during the period of post-season recovery is a warning sign of a possible arousal addiction. However, a gain of over five percent of body weight is unwise for most individuals, as this would be counterproductive to the task of restoring the body's equilibrium. When in training or competition, female distance runners should not drop below eight percent body fat, and a healthy range would be nine to 14%. Men should not drop lower than four percent body fat, and a healthy range would be five to 10% (Costill, 1986). Athletes are commonly near the lower limit of body fat during the peak period, and a five percent gain in weight during the post-season recovery period will herald a return to normalcy. For reasons both physical and mental, this practice will prevent a good many problems. No great athlete was ever made in a day, week, or month—but many have been undone in less time. Seek out therapy and appropriate measures for problems that arise. Never go into a new season with old problems. There will be enough new challenges in the coming season.

Psychological Aspects

Perhaps more important than the physical needs are the psychological and emotional needs for a period of post-season recovery. These vary considerably depending upon the maturity of the individual. The coach should normally observe the athlete from a distance at this time. Both the coach and athlete will need a hiatus. Nevertheless, this period can afford some insight into the athlete's personal development. For the sake of simplicity, the common needs and behavior of athletes during the period of post-season recovery can be characterized and divided into one of three levels of maturity:

- The Immature Athlete
- The Maturing Athlete
- The Mature Athlete, or Master

The Immature Athlete

Sports psychology is not the subject of this book, but it is appropriate to here make a few observations. Both coaches and athletes should guard against focusing on outcomes. Ron Clarke, an Australian World Record holder at 5,000 and 10,000 meters in the 1960's, observed that success is not all that rosy because an athlete then tends to become complacent, and failure is not all that bad since it leads an athlete to renewed reflection and determination. However, if a coach and athlete are to be extraordinarily successful and enjoy peace of mind, they need to transcend outcome orientation. That is, they must lose their attachment and desire for success, and their aversion to failure. The right reason for participation in athletics the pursuit of personal cultivation and excellence. Results are incidental to the process. This level of maturity is not often found in adults, and even less amongst young athletes. The young are generally handicapped by their social environment and relative lack of experience. And so the coach often encounters the immature athlete who regards the process as a personal sacrifice (See Percy Cerutti's chapter "On Sacrifice" found in *Success: In Sport and Life*, 1967). The immature athlete is quick to default from the straight and narrow during the athletic season and celebrate success with the usual worldly distractions, or go on a binge in lamenting over failure. Obviously, if still within the competitive season, the failure to maintain psychological integrity can have an adverse effect upon the remainder.

The immature athlete can sometimes be educated to defer the longed for gratifications, or hysterics as the case may be, until after the season. But then the immature athlete will proceed to do all those "sacrificed" things that generally run contrary to the purpose of post-season recovery—such as overexposure to the sun, parties, drinking, poor eating habits, and bad company. Clearly, the immature athlete is not practicing the way of athletics for the sake of the way. Instead, he or she is using athletics as a ticket to get something. That something might be love, attention, money, social esteem, a car, or the attention of the opposite sex.

If an athlete is not participating for the right reason, then it is the coach's job to point this out. The immature athlete should be advised with honesty and compassion to pursue what he or she really wants by a more direct route. If, after this the immature athlete still want to use athletics as a ticket to get something else, then he or she must search for another teacher. Why? Because the immature athlete is not sincere. The decision to become sincere transforms the immature athlete into a maturing athlete.

The Maturing Athlete

The maturing athlete is sincere and is searching for the way. The maturing athlete will show a readiness for enlightenment on a particular subject by asking appropriate questions. Then, the coach's role is to indicate the way—answer the question or direct the athlete to an environment or experience that holds the answer. When the maturing athlete finds the way, the coach's role is to nod and affirm the discovery. The maturing athlete still struggles with attachment to outcome orientation, and to various desires and aversions. But the maturing athlete is sincere in attempting to transcend these things and pursue personal cultivation.

The most common problem is the result of outcome orientation, whereby the maturing athlete focuses too greatly on becoming instead of being. Frequently, the maturing athlete views the way as a self-perfection project, ultimately defined by attachment of the ego to externalities. Moreover, the maturing athlete wants to complete the project NOW. The maturing athlete has a tendency to lose contact with the here and now and can miss enjoyment of the process. The maturing athlete has not yet "arrived" in life (as the outcome-orientated quest is sometimes called) and so lacks peace of mind. Obviously, we all fit the description of the maturing athlete during the larger part of our lives.

With the immature athlete, and to a lesser degree the maturing athlete, success and failure are like sticks of emotional dynamite. The coach sometimes then assumes the job of carefully measuring out small doses of each to use as carrots in order to maintain some kind of emotional equilibrium. Meanwhile, the coach attempts to wean the athlete away from outcome orientation and the quest for so-called success, towards process orientation and excellence.

Too much success too early can easily result in complacency. When it comes to the emotional gumption required for superior performance, this could mean that the immature or maturing athlete is finished—at least for that particular season. On the other hand, too much so-called failure can lead to despair, a crisis of confidence, and a premature end to participation.

Since the coach places a value on the activity and process, there is a natural desire to try to influence the situation to prevent either of these two extremes. Moreover, the unexamined assumption is that these unfortunate events are not supposed to happen. This assumption is not correct. In manipulating the carrots, a coach may be partly motivated by outcome orientation—the desire for a successful season. Moreover, the coach may also be acting out of compassion—a sincere desire to save athletes from the painful experiences associated with

straying from the path. Regardless of the coach's intentions, manipulation of the carrots may come to be resented by the immature or maturing athlete as a form of mind game, and more so when the athlete's ultimate success has depended on the coach's management.

The problem is that society tells coaches they are expected to succeed and not to fail: winning is good, losing is bad. The unexamined assumption is that athletes under the coach must do the same. Athletics becomes a part of the entertainment industry as opposed to a vehicle of education. And so the coach acts to prevent the athletes from experiencing failure. Disaster occurs when the outward manifestation of success is out of step with their true level of maturity. This is a story with an unhappy ending. Sometimes athletes need to fail. Failure or temporary non-success is an essential part of the natural process. Coaches sometimes need to let athletes fail. Their response to non-success ultimately determines the course of their personal growth and character development.

The difficult question faced by every coach is—just where do actions taken as an educator end, and where do they threaten to interfere with the natural process? The line is not always easy to discern. As coaches mature and witness the destructive effects that so-called success can have, they often find themselves more reserved and much less inclined to mark and clear the minefield of athletic life.

Whereas the immature athlete may regard the period of post-season recovery as an opportunity to make up for lost sacrifices, the maturing athlete generally has a different perspective. Again, the maturing athlete is still not completely liberated from outcome orientation. Attaining an outcome at the end of the athletic season therefore impacts the maturing athlete. In the days following the mental high associated with the last event of the competitive season, regardless of its outcome, a maturing athlete generally experiences an emotional low, or mental state bordering depression. A pronounced feeling of relief, sometimes mixed with an inability to absorb it all, tends to leave the maturing athlete with an identity crisis.

Athletics is an intense and highly compressed form of life. The pressures, decisions and changes, which normally shape the personality over many months and years, come in the span of minutes, days and weeks. One moment, athletes aspire to become both within and without, what moments later they have become! Few things test the resiliency of the personality more severely. Sometimes, the personality cannot withstand the stress, and is harmed. Too much success can often be far more dangerous than failure. We have a natural inclination to overcome failure, but few guard themselves with respect to success.

In any case, the maturing athlete needs to assimilate and accommodate this experience and take stock of his or her new self. The maturing athlete will not be mentally refitted to pursue the question—where do I go from here—before having come to grips with the fundamental question—who am I? This may take but a few days.

A maturing athlete may be carried away by the feeling of the moment and be possessed to start training again in earnest. The maturing athlete is sincere about personal cultivation, but again, the common problem is he or she views the process with outcome orientation, and as a project to be completed now. This puts the maturing athlete in jeopardy of unwittingly becoming an arousal addict.

The coach and athlete must guard against this tendency, since subjective feelings are most deceptive—just as in the twilight of a superior performance, where mental excitement masks a state of exhaustion. This can be equally true in success or failure. The former can lead one on as an intoxicant, while the latter serves as a goad. And in an effort to prove himself or herself, the maturing athlete may be driven to an imprudent course of action.

In the event of success, the thinking often goes: if some was good, more is better. And with failure: if some was not enough, more is necessary. Neither may be true. Certainly neither is true at this time. If the maturing athlete has been truly serious about sport, it has been a long, hard season and the individual needs a rest. Returning directly to serious training will likely lead to a few days or weeks of largely misguided work, followed by a physical and mental letdown that could last indefinitely, thus impeding rather than enhancing further progress.

In purely rational terms, the maturing athlete's recent experience might be assimilated and accommodated directly. But it is the emotional and not the rational aspect of the personality that carries an athlete through the vicissitudes of an athletic season and life. Nothing great was ever accomplished without emotion. It is not a commodity an athlete would want to run out of halfway through an athletic season. There is a physical and a mental or emotional peak in athletics. They must both happen at the right time if a superior performance is to be possible.

In a short time, the feelings of the moment pass away and permit the athlete to see things objectively, with a certain detachment. There is a fine line between inspiration and obsession. The coach and athlete would do well to watch over themselves. In particular, when faced with adversity, the athlete should beware rationalizations or spin doctors, since words can deceive. Things are what they are. An old Chinese saying: Seek truth from facts.

During post-season recovery, the maturing athlete may alternate between states of unrest—even nervous irritability—and states of physical and mental fatigue brought on by no apparent reason. For the physical and psychological reasons above, it is not uncommon for an athlete to sleep and catnap more than usual. At this time, the subconscious faculty is working overtime to sort things out and perhaps even catch up. The expanded dream-life necessarily connected with expanded sleep time reflects this mental need. In waking life, the athlete may feel that they want to do something, and yet nothing in particular!

To some degree, these states give evidence that the maturing athlete is experiencing withdrawal symptoms from the aforementioned natural drugs. This is needed. A good indication of successful post-season recovery—is that the athlete does not feel the urge to run. An athlete will then do well to engage in some kind of activity, but not distance running. It is healthier to strike a balance and explore other areas of life. In a few weeks, the initial feelings of relief, and the question of whether one would ever do that again, will be answered. In sum, the sequence that a maturing athlete may experience following the seasonal high could include:

- Letdown and depression
- Fatigue alternating with energy, even irritability
- Restless desire to do things and yet nothing
- Boredom
- A certain self-awareness, determination and renewed enthusiasm to achieve new goals and purposes

At some point, an individual may become satisfied and will then have outgrown the vehicle of athletics as a means of achieving personal growth. In brief, the athlete has graduated, and it is time to move on to the next stage of life and other challenges. The coach's role is to then assist the individual, and facilitate his or her continued journey.

The Mature Athlete or Master

Living in the eternal present—the now—the mature athlete is not greatly affected by the outcome of the athletic season. Its conclusion is anticlimactic. No personal crises are evoked in its wake. Seeing no antics from a mature athlete who has just attained a great success, the immature or maturing athlete might think: "This person has no enthusiasm." Not so. The mature athlete was present, being there all along, and enjoyed the entire process, that is, each and every day. In contrast, the maturing athlete probably worked impatiently on an outcome-orientated quest, focused on becoming, and missed most of it. For the maturing athlete, the entire experience could well have ridden on the big race, or would-be payday—a single day. To miss so much life and to lack peace of mind for months or years, hoping to find it on one day in the externalities associated with success, seems an absurd proposition to the mature athlete.

Something should perhaps be said about the proper role of the coach regarding an individual who has progressed to the point of becoming a mature athlete or potential master: you have to let go. Sometimes coaches are people who like to control people. That is not healthy for either party. The external master of the coach, once having assisted in the process of cultivating the athlete's inner master to a critical mass of maturity, should then retreat to permit the natural process to complete itself (Dürckheim, 1989).

Often, athletes will suffer anxiety about having greater independence, and may even think the coach is no longer concerned about them. However, the external master can become a crutch, thus hindering athletes from truly exercising

freedom of choice, and assuming responsibility for the consequences of their life decisions. This would prevent athletes from realizing their limitations—but also their ultimate potential. Sometimes athletes will take a fall from an established level and never return to it. Sometimes they will go onward and surpass their teacher. Either outcome can lead to personal growth, and simply reflects the natural order of things.

If the foundations we stand on in natural consciousness actually prevent us from experiencing Being, then the master who wants to lead us to experience must first do everything they can to knock them away. That is why their actions often startle like bolts from the blue, why they speak in riddles, why shock tactics are their tenderness, and nonsense their logic.

The master of a skill has purged his technique of ego and is able to hand it over to a higher power and let that power act for him. No ordinary yardstick can be used to measure the result, since something more than visible achievement is at stake—namely, revelation of another dimension. When the student finally achieves mastery, this dimension reveals itself in five ways:

In the basic attitude of the person performing the feat.

In the perfection of the feat itself.

In the power reflected in the feat.

In what the person performing it experiences.

In its numinous effect on those who witness it.

— Karlfried Graf Dürckheim

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